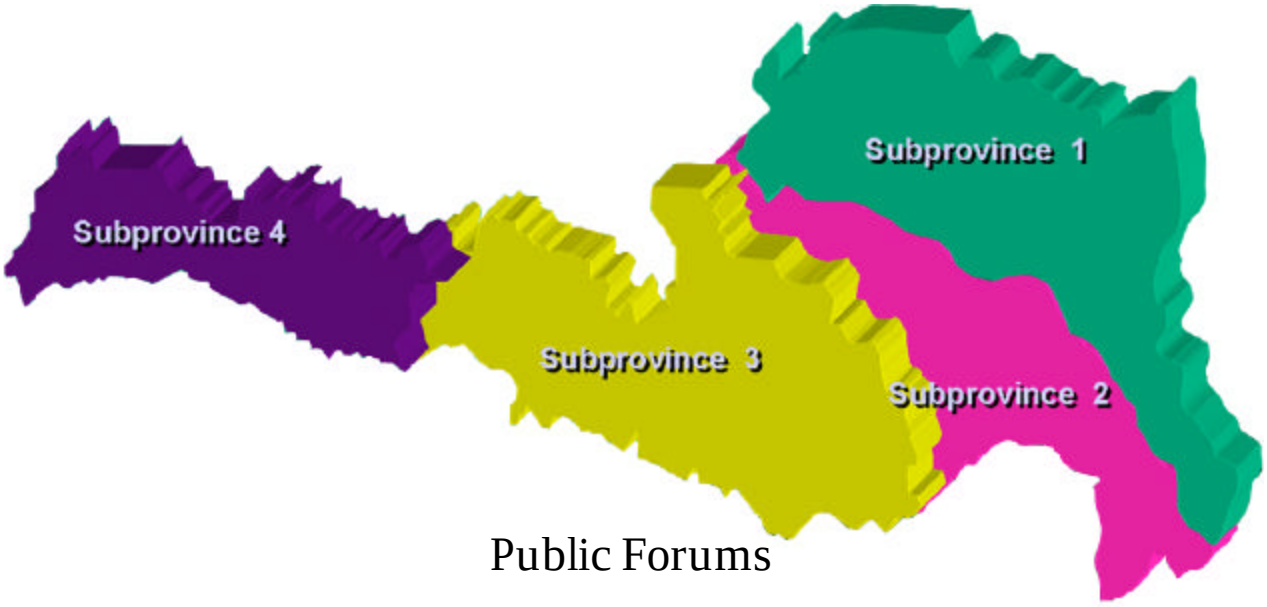
Introduction to Subprovince 3 Alternatives for the LCA Study



Public Forums

Houma – May 27
Lafayette – May 28
Lake Charles – May 29
New Orleans – June 2

In partnership with Louisiana Department of Natural Resources and U. S. Army Corps of Engineers

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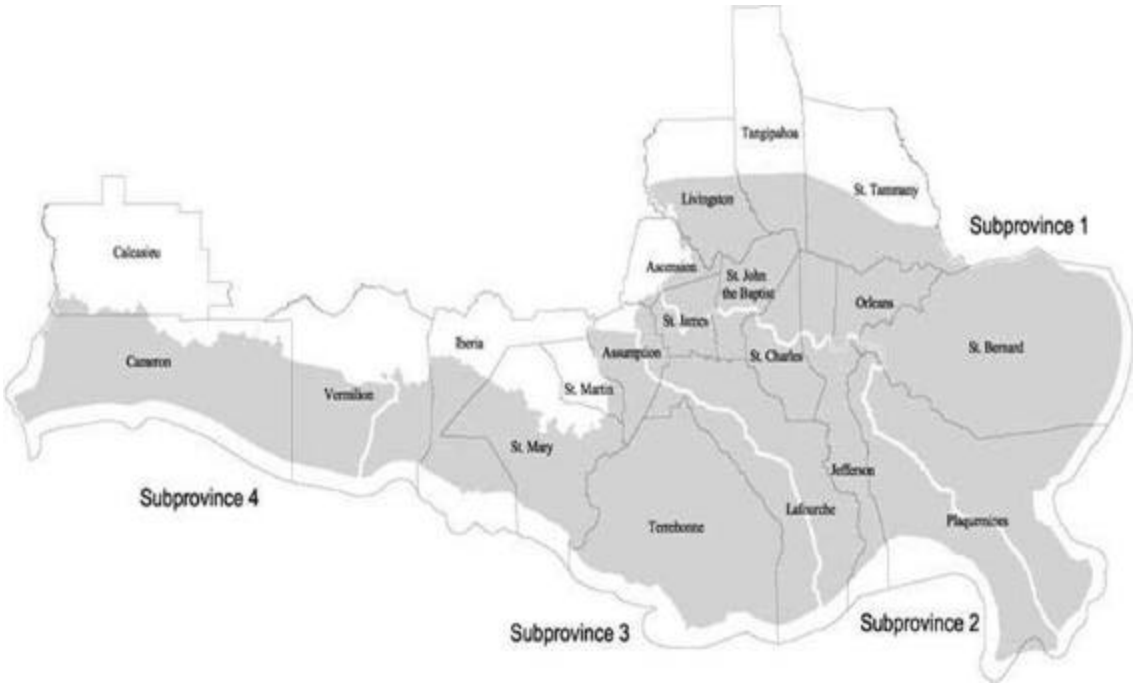
Introduction

The Coast 2050 Planning Process developed Regional Ecosystem Restoration Strategies through a series of 65 public meetings. Many of these strategies were conceptual in nature and required some level of design to examine potential effects of implementing these strategies. In Phase II of the LCA planning process, over one hundred restoration measures were developed. Measures are specific projects, such as freshwater re-introduction (also known as diversion), marsh creation, and barrier island restoration at specific sites. None of these measures represent a single and complete alternative. Therefore, measures must be combined to form alternatives. With so many measures to choose from, the possible combinations appear limitless. The goal, however, is not to develop as many alternatives as possible; rather, it is to examine different approaches for implementing the strategies in the 2050 plan In that sense, the alternatives should represent different hypotheses for testing the various strategies in the 2050 plan. Moreover, the alternatives need to be distinct enough to provide for real choice among them. In planning terminology, the alternatives must be "significantly different."

At the upcoming meetings, the LCA team will discuss these alternatives and their effectiveness. Discussions on these alternatives and how they were put together will be the focus of the open house. This will be followed by orientation and overview on the "no action" plan of the study and what is next in the LCA planning process. Lastly, public participation on the projected effects of these alternatives will take place in an informal and interactive setting. Questions regarding this document or the study in general can be directed to the study managers: Troy Constance at 504-862-2742 and Jon Porthouse at 225-342-9421. Continued public interest and support for the coastal restoration effort is essential to this evolving process.



The nineteen coastal parishes of the Louisiana Coastal Zone divided into the four LCA study subprovinces. White lines designate the subprovince boundaries.

Subprovince 3

Problems, Opportunities and Proposed Project Types

Subprovince 3 encompasses the delta complex between Bayou Lafourche and the Freshwater Bayou Canal, including the entirety of the Terrebonne, Atchafalaya, and Teche-Vermilion basins. This subprovince is unique among the four subprovinces in that it encompasses the only area along the coast that experiences significant natural delta building. The influence of the Atchafalaya River not only develops land in Atchafalaya Bay, but reduces land loss in the Teche-Vermilion Basin and contributes to shoreline accretion in the Chenier Plain. The subprovince also includes Terrebonne Basin which is the furthest removed from any active river system and is thus the hardest to re-establish land building and nourishment functions. The Terrebonne Basin is experiencing some of the highest land loss rates within the delta plain, due mainly to altered hydrology associated with damming of Bayou Lafourche, the dredging of oil and gas access canals and the Houma Navigation Canal. The Belle Pass jetties on the Fourchon Headland has contributed to a disruption of sediment transfer from the headland to the Timbalier Barrier Island Chain, and barrier shoreline degradation in general has caused an increase in tidal exchange within the basin. Increased tidal prism further contributes to the degradation of the barrier shoreline system.

Although the problems and needs are severe in the Terrebonne Basin, the opportunities for rehabilitation are relatively low. Reintroduction of natural land-building and nourishing functions are likely to be costly and the uncertainty of effectiveness is relatively high. The western two thirds of the subprovince, however, is relatively stable and projected to remain so.

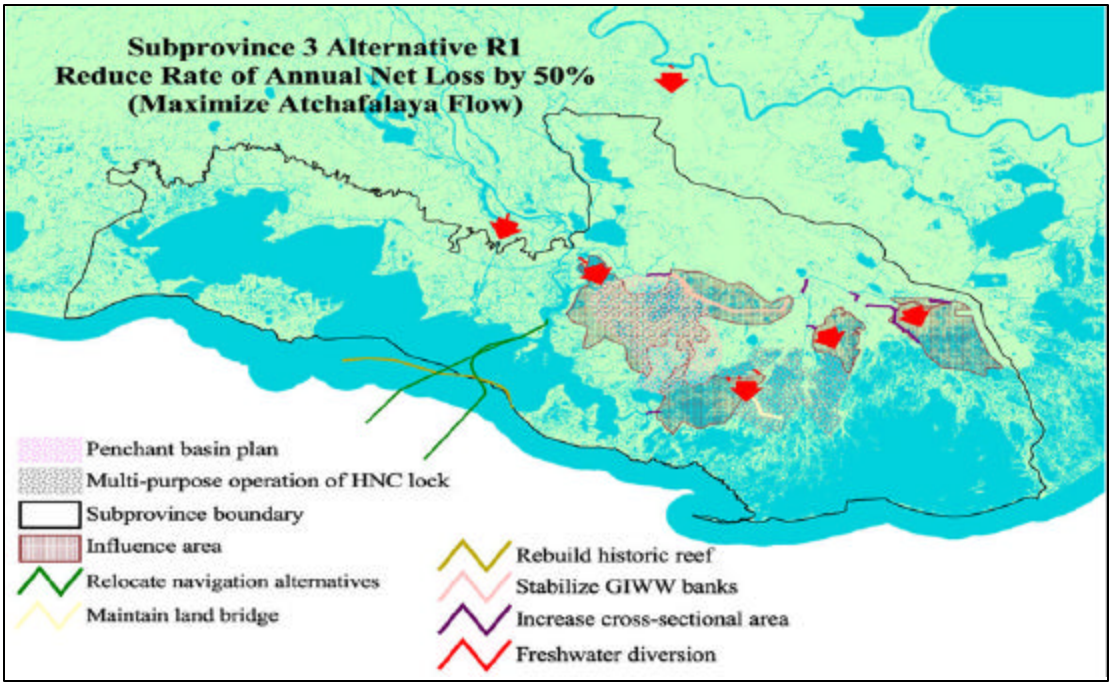
Restoration projects in this subprovince will focus on restoration and protection of barrier shorelines, introducing river influence from the Mississippi and Atchafalaya Rivers to critical areas, strategic application of dredged material to create marsh in critical areas, and maximizing delta building in Atchafalaya Bay.

The approaches for Subprovince 3 reflect both the opportunities and the constraints facing wetland restoration in this area. The approaches are maximize Atchafalaya flow, land building by delta development, maximize geomorphic features, and a hybrid approach combining the other approaches.

Maximize Atchafalaya Flow

The ongoing deltaic land growth at the mouth of the Atchafalaya River and Wax Lake Outlet is both a rare source of new wetland acres in coastal Louisiana and a clear example of the benefits that can be derived from restoring deltaic processes. Alternatives developed under this approach seek to enhance to the maximum extent possible the ongoing land growth, while also redirecting Atchafalaya waters to help nourish wetlands in Terrebonne basin. In addition to improving natural deltaic processes, alternatives under this approach would involve mechanical measures (i.e., sediment delivery) to further expedite and enhance land growth. Increased flows down the existing Bayou Lafourche will also be assessed as a means for reducing loss rates in eastern Terrebonne basin. Finally, alternatives under this approach will include measures designed to rehabilitate or maintain important geomorphic features, including barrier islands, land bridges, and gulf shorelines.

Map of Maximize Atchafalaya Flow Alternative

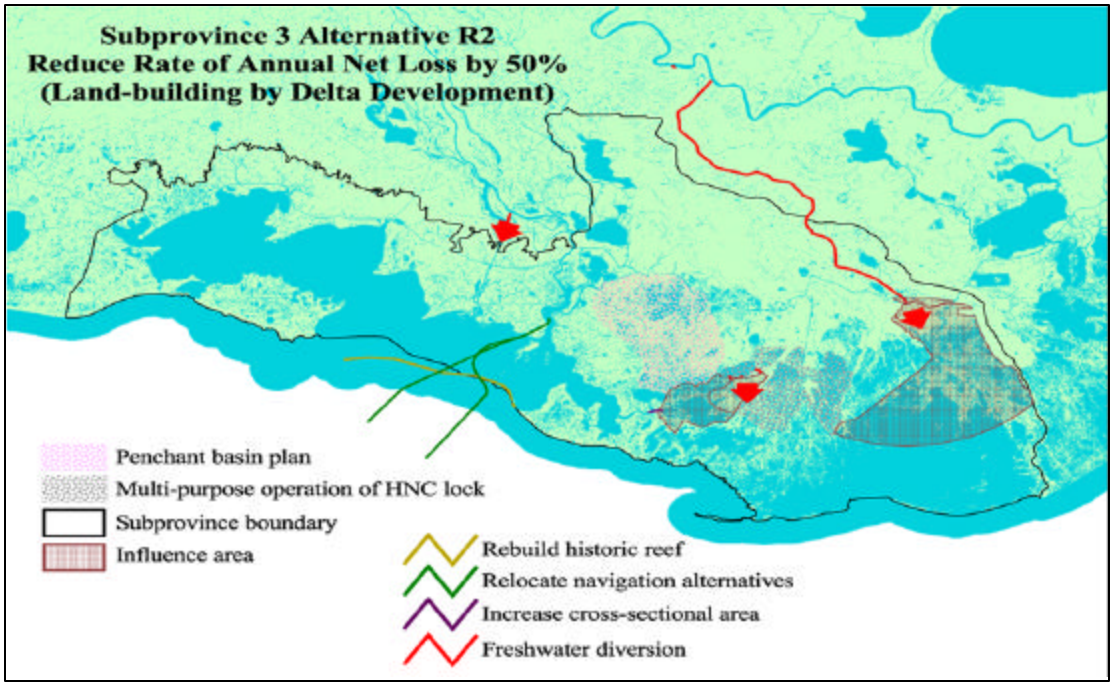


Alternative R1 – Maximize Atchafalaya Flow
Increase sediment transport from Mississippi River to Atchafalaya River. Increase sediment transport from Atchafalaya Main Channel to Wax Lake Outlet delta. Relocate Atchafalaya Bay navigation channel to bypass deltas. Rebuild Point au Fer Barrier Reef to increase sediment retention in deltas. Maximize and manage Atchafalaya River discharge across Terrebonne Basin. Enhance Bayou Lafourche flows with a small diversion from Mississippi River. Build Houma Navigation Canal lock and maintain landbridge between Bayous DuLarge and Grand Caillou.

Land Building by Delta Development

Given the challenge of reintroducing significant amounts of freshwater, sediments, and nutrients to the eastern portion of Subprovince 3, it would take a massive effort to re-establish deltaic land growth in the area. The only measure potentially capable of doing so is the "Third Delta," an ambitious proposal to create a massive new distributary channel from the Mississippi River to both Barataria and Terrebonne basins. To assess the effects of such a measure, alternatives developed under this approach would center on implementation of the Third Delta. While relying primarily on this new distributary channel, these alternatives would also include moderate, complementary efforts to enhance Atchafalaya delta development, move Atchafalaya waters to the east, and restore critical geomorphic features.

Map of Land Building by Delta Development Alternative

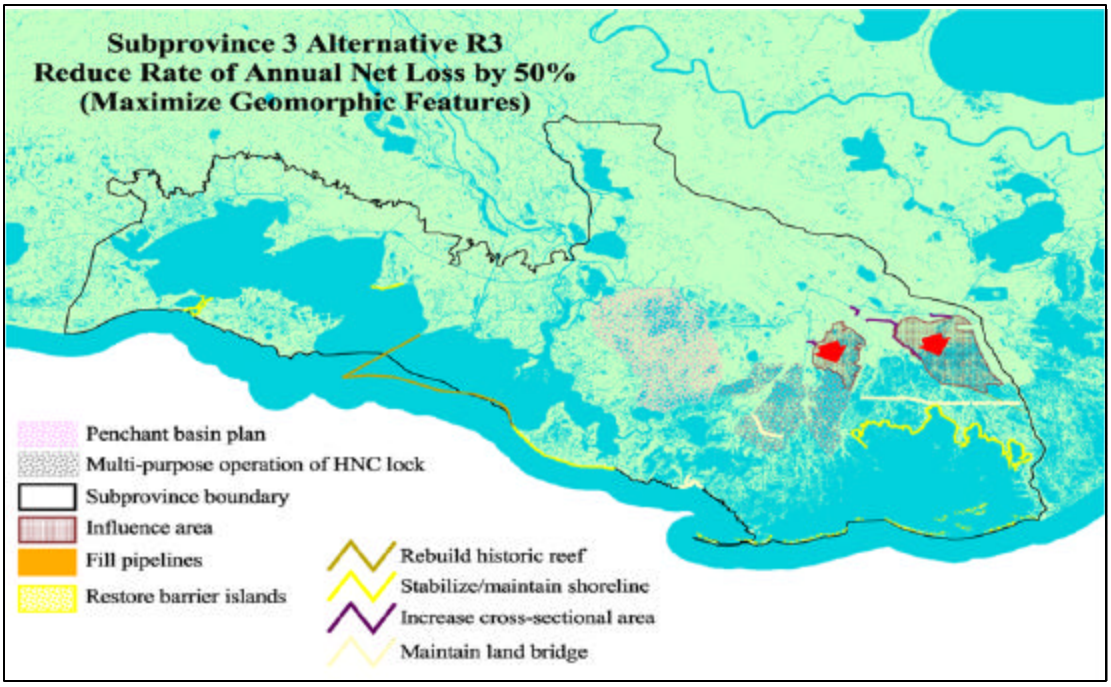


Alternative R2 – Land-building by Delta Development using Mississippi and Atchafalaya Resources Divert Mississippi River in small diversion to enhance Bayou Lafourche and a large diversion would be built to the eastern Terrebonne Basin (Third Delta). Increase sediment transport from Mississippi River to Atchafalaya River. Increase sediment transport from Atchafalaya Main Channel to Wax Lake Outlet delta. Relocate Atchafalaya Bay navigation channel to bypass deltas. Rebuild Point au Fer barrier reef to increase sediment retention in deltas. Moderately increase and manage Atchafalaya River discharge in southwestern Terrebonne and Penchant basins. Mimic ridge function with Houma Navigation Canal lock.

Maximize Geomorphic Features

This approach focuses primarily on rehabilation maintance of geomorphic features to reduce the loss of wetlands and to a lesser extent, increase the efficiency of delta growth. Secondarily, this approach improves management of Atchafalaya River influence across Terrebonne Basin.

Map of Maximize Geomorphic Features Alternative

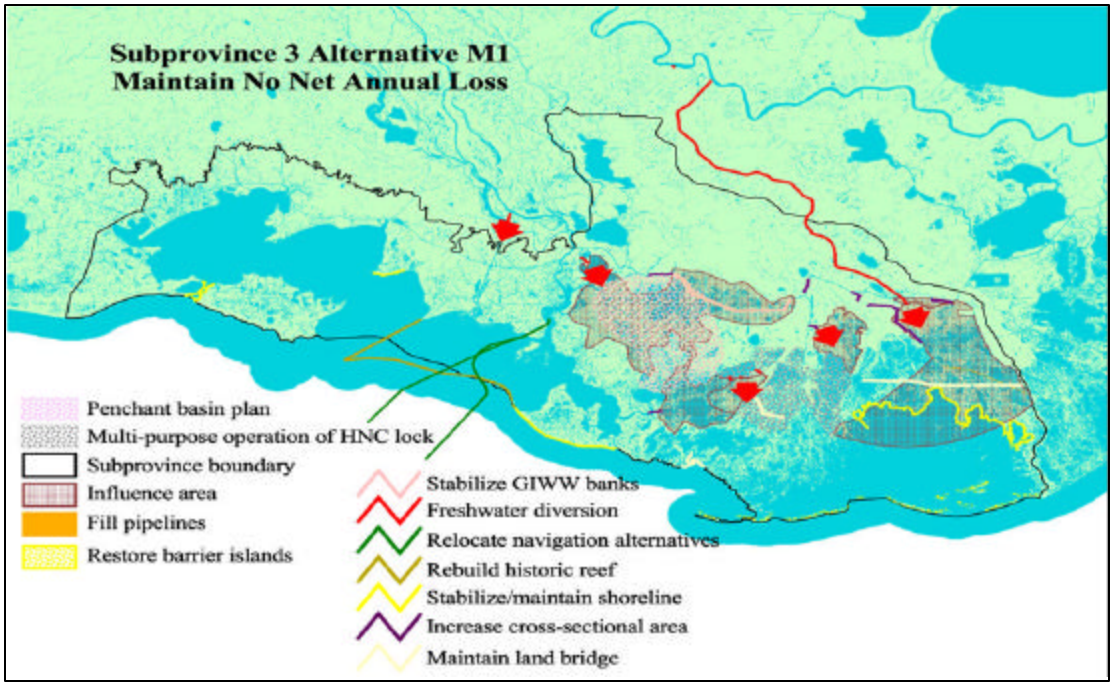


Alternative R3 – Maximize Geomorphic Features
Stabilize and maintain banks and shorelines near Southwest Pass, East Cote Blanche Bay at Point Marone, Terrebonne/Timbalier Bays, and Point Au Fer Island. Rebuild and enhance historic reefs between Point Chevreuil, Marsh Island, Point Au Fer, Eugene Island. Mimic ridge function with Houma Navigation Canal lock near Bayou Grand Caillou. Build or maintain ridges and landbridges between Bayou Dularge and Grand Caillou, between Sister Lake and the Gulf. Rehabilitate Terrebonne barrier shoreline.

Maximize Geomorphic Features and River Influence

Due to the extreme loss rates in this subprovince, we combined all available measures to maximize net gain of wetlands. Alternatives developed under this approach represent a hybrid of the three former approaches. Specifically, this alternative would employ both the Third Delta and more extensive efforts to enhance Atchafalaya delta development and move Atchafalaya waters to the east, while also maximizing efforts to rehabilitate and maintain critical geomorphic features.

Map of Maximize Geomorphic Features and River Influence Alternative



Alternative M1

Divert Mississippi River in small diversion to enhance Bayou Lafourche and a large diversion would be built to the eastern Terrebonne Basin (Third Delta). Increase sediment transport from Mississippi River to Atchafalaya River. Increase sediment transport from Atchafalaya Main Channel to Wax Lake Outlet delta. Relocate Atchafalaya Bay navigation channel to bypass deltas. Rebuild Point au Fer barrier reef to increase sediment retention in deltas. Maximize and manage Atchafalaya River discharge across Terrebonne Basin. Build Houma Navigation Canal lock and maintain landbridges across central and eastern Terrebonne Basin (between Bayou Grand Caillou and Bayou Dularge, between and Sister Lake and the Gulf, and between Bayou Terrebonne and Bayou Lafourche). Rehabilitate Terrebonne barrier shoreline. Reestablish historic Point Chevreuil to Marsh Island reef complex. Stabilize and maintain banks and shorelines near Southwest Pass, East Cote Blanche Bay at Point Marone, Terrebonne/Timbalier Bays, and Point Au Fer Island. Backfill pipeline canals near South Catfish Lake.